

One Hundred Miscellaneous Integrals

1. $\int e^{3x} dx$

2. $\int \cos 2x dx$

3. $\int \frac{\sin x}{1 - \cos^2 x} dx$

4. $\int \frac{x}{\sqrt{1+x}} dx$

5. $\int \sqrt{1+2x} dx$

6. $\int \ln 2x dx$

7. $\int_0^1 (x-2)^5 dx$

8. $\int_2^5 \frac{1}{\sqrt{x-1}} dx$

9. $\int_0^1 x^3 \sqrt{x^4 + 1} dx$

10. $\int_1^0 x \cos x^2 dx$

11. $\int x e^{-x} dx$

12. $\int \tan 2x dx$

13. $\int_0^1 \frac{e^x}{1 + e^{2x}} dx$

14. $\int \frac{x}{\sqrt{1-x^2}} dx$

15. $\int_0^{2\pi} |\sin x| dx$

16. $\int \sec x dx$

17. $\int e^x \tan(e^x) dx$

18. $\int \frac{dx}{\sqrt{x+1} - \sqrt{x}}$

19. $\int \sin(2x) \cos x dx$

20. $\int \frac{dx}{e^{3x}}$

21. $\int e^x \cos x dx$

22. $\int (\cos 2x - 1) dx$

23. $\int \frac{1+x}{1+x^2} dx$

24. $\int_0^1 \frac{dx}{1+x^2}$

25. $\int \frac{1}{x^2 - 1} dx$

26. $\int \arcsin x dx$

27. $\int \frac{\cos x}{\sin x} dx$

28. $\int_0^1 e^{\pi} dx$

29. $\int \frac{\arcsin x}{\sqrt{1-x^2}} dx$

30. $\int x \sec^2 x dx$

31. $\int e^{\ln x} dx$

32. $\int \frac{\tan x}{\cos x} dx$

33. $\int \frac{x}{(x^2 + 1)^2} dx$

34. $\int \frac{1-x}{1+\sqrt{x}} dx$

35. $\int_1^e \ln(x^2) dx$

36. $\int 3^x dx$

37. $\int \frac{\sin x}{\sqrt{1+\cos x}} dx$

38. $\int \frac{1+e^{-x}}{x-e^{-x}} dx$

39. $\int \sec^2 x \tan x dx$

40. $\int e^{\sqrt{x}} dx$

41. $\int_0^{\pi/4} \frac{1}{1-\sin^2 x} dx$

42. $\int \frac{\cos x}{\sin x + 3} dx$

43. $\int \frac{\sec^2 x}{\tan x} dx$

44. $\int \sqrt{1-x^2} dx$

45. $\int_2^3 \frac{2x^2}{1-x^3} dx$

46. $\int x \ln x dx$

47. $\int \sec(2x) \tan(2x) dx$

48. $\int \frac{2x^2}{x^2 + 1} dx$

49. $\int \ln(2^{\sqrt{x}}) dx$

50. $\int \log_{10} x dx$

51. $\int \frac{e^{\tan x}}{\cos^2 x} dx$

52. $\int_0^1 \frac{1}{\sqrt{1+x^2}} dx$

53. $\int \csc(2x) \tan(2x) dx$ 54. $\int \frac{x+1}{x^2+2x+3} dx$ 55. $\int \frac{1}{x(x^2+1)} dx$ 56. $\int \sin(\ln x) dx$
 57. $\int x e^{-x^2} dx$ 58. $\int \sec^2(3x-1) dx$ 59. $\int \frac{d\theta}{1+\tan^2\theta}$ 60. $\int_0^1 \arctan x dx$
 61. $\int e^{2x+3} dx$ 62. $\int \tan^2 x dx$ 63. $\int_1^2 \frac{1}{x^3} dx$ 64. $\int \frac{\sqrt{1-x^2}}{x^2} dx$
 65. $\int_{-1}^1 \frac{x}{1+x^2} dx$ 66. $\int_{-1}^1 x \cdot |x| dx$ 67. $\int \sin(2x) \cos^2(2x) dx$ 68. $\int \frac{1}{x\sqrt{x^2-1}} dx$
 69. $\int (e^x - e^{-x})^2 dx$ 70. $\int \frac{\sqrt{x^2-1}}{x} dx$ 71. $\int \frac{e^x}{e^x+1} dx$ 72. $\int \frac{1}{\cos 2x} dx$
 73. $\int \frac{x}{\sqrt{1+x^2}} dx$ 74. $\int \frac{\sqrt{x}}{1+x} dx$ 75. $\int x^2 e^{x^3} dx$ 76. $\int \frac{x^2}{\sqrt{1-x}} dx$
 77. $\int \frac{e^x}{\sqrt{1-e^{2x}}} dx$ 78. $\int \cos^2(3x) dx$ 79. $\int \frac{x}{x+1} dx$ 80. $\int_2^4 \frac{1}{(1-4x)^2} dx$
 81. $\int \frac{\sqrt{\ln x}}{x} dx$ 82. $\int_{-\pi/6}^{\pi} \sin x \cos x dx$ 83. $\int \frac{x^2+1}{x+1} dx$ 84. $\int \frac{x^2+1}{\sqrt{x^3+3x}} dx$
 85. $\int \frac{x^3-1}{x-1} dx$ 86. $\int \sqrt{x} \ln x dx$ 87. $\int \csc^2 3x dx$ 88. $\int \frac{e^x}{\cos^2 e^x} dx$
 89. $\int \frac{\cot x}{\ln(\sin x)} dx$ 90. $\int \ln(\sin x) \cdot \cos x dx$ 91. $\int \frac{e^{1/x}}{x^2} dx$ 92. $\int \frac{e^x}{\cos(e^x)} dx$
 93. $\int x \cos x dx$ 94. $\int_{-1}^1 x^2 \sin x dx$ 95. $\int \frac{1}{x \ln x} dx$ 96. $\int \frac{x e^x}{(x+1)^2} dx$
 97. $\int \ln(e^{\sin x}) dx$ 98. $\int \frac{11}{(x+1)^{10}} dx$ 99. $\int \cos \pi dx$ 100. $\int_0^2 x e^{\ln 5} dx$

Answers

1. $\frac{1}{3}e^{3x} + C$
2. $\frac{1}{2}\sin(2x) + C$
3. $-\ln|\csc x + \cot x| + C$
4. $\frac{2}{3}(x+1)^{3/2} - 2\sqrt{x+1} + C$
5. $\frac{1}{3}(1+2x)^{3/2} + C$
6. $x \ln(2x) - x + C$
7. $-\frac{21}{2}$
8. 2
9. $\frac{1}{6}(2^{3/2} - 1)$
10. $-\frac{1}{2}\sin 1$
11. $-x e^{-x} - e^x + C$
12. $-\frac{1}{2}\ln(\cos 2x) + C$
13. $\arctan e - \frac{\pi}{4}$
14. $-\sqrt{1-x^2} + C$
15. 4
16. $\ln|\sec x + \tan x| + C$
17. $-\ln|\cos e^x| + C$
18. $\frac{2}{3}(x+1)^{3/2} + \frac{2}{3}x^{3/2} + C$
19. $-\frac{2}{3}\cos^3 x + C$
20. $-\frac{1}{3}e^{-3x} + C$
21. $\frac{1}{2}e^x \cos x + \frac{1}{2}e^x \sin x + C$
22. $\frac{1}{2}\sin 2x - x + C$
23. $\arctan x + \frac{1}{2}\ln(1+x^2) + C$
24. $\frac{\pi}{4}$
25. $\frac{1}{2}\ln\left|\frac{x-1}{x+1}\right| + C$
26. $x \arcsin x + \sqrt{1-x^2} + C$
27. $\ln|\sin x| + C$
28. e^π
29. $\frac{1}{2}\arcsin^2 x + C$
30. $x \tan x + \ln|\cos x| + C$
31. $\frac{1}{2}x^2 + C$
32. $\sec x + C$
33. $-\frac{1}{2(x^2+1)} + C$
34. $x - \frac{2}{3}x^{3/2} + C$
35. 2
36. $\frac{3^x}{\ln 3} + C$
37. $-2\sqrt{1+\cos x} + C$
38. $\ln|x - e^{-x}| + C$
39. $\frac{1}{2}\sec^2 x + C$
40. $2e^{\sqrt{x}}(\sqrt{x}-1) + C$
41. 1
42. $\ln|\sin x + 3| + C$
43. $\ln|\tan x| + C$
44. $\frac{1}{2}\arcsin x + \frac{1}{2}x\sqrt{1-x^2} + C$
45. $\frac{2}{3}\ln\left(\frac{7}{26}\right)$
46. $\frac{x^2}{2}\ln x - \frac{x^2}{4} + C$
47. $\frac{1}{2}\sec(2x) + C$
48. $2(x - \arctan x) + C$
49. $\ln 2 \cdot \left(\frac{2}{3}x^{3/2}\right) + C$
50. $\frac{x \ln x - x}{\ln 10} + C$
51. $e^{\tan x} + C$
52. $\ln(\sqrt{2} + 1)$
53. $\frac{1}{2}\ln|\sec 2x + \tan 2x| + C$
54. $\frac{1}{2}\ln(x^2 + 2x + 3) + C$
55. $\ln\left|\frac{x}{\sqrt{x^2+1}}\right| + C$
56. $\frac{1}{2}x[\ln(\sin x) - \ln(\cos x)] + C$
57. $-\frac{1}{2}e^{-x^2} + C$
58. $\frac{1}{3}\tan(3x-1) + C$
59. $\frac{1}{2}\theta + \frac{1}{4}\sin 2\theta + C$
60. $\frac{\pi}{4} - \frac{1}{2}\ln 2$
61. $\frac{1}{2}e^{2x+3} + C$
62. $\tan x - x + C$
63. $\frac{3}{8}$
64. $-\frac{\sqrt{1-x^2}}{x} - \arcsin x + C$
65. 0
66. 0
67. $-\frac{1}{6}\cos^3(2x) + C$
68. $\operatorname{arcsec} x + C$
69. $\frac{1}{2}e^{2x} - 2x - \frac{1}{2}e^{-2x} + C$
70. $\sqrt{x^2-1} - \operatorname{arcsec} x + C$
71. $\ln|e^x + 1| + C$
72. $\frac{1}{2}\ln|\sec 2x + \tan 2x| + C$
73. $\sqrt{1+x^2} + C$
74. $2\sqrt{x} - 2\arctan\sqrt{x} + C$
75. $\frac{1}{3}e^{x^2} + C$
76. $-2\sqrt{1-x} + \frac{4}{3}(1-x)^{3/2} - \frac{2}{5}(1-x)^{5/2} + C$
77. $\arcsin e^x + C$
78. $\frac{1}{2}x + \frac{1}{12}\sin 6x + C$
79. $x - \ln|1+x| + C$
80. $\frac{2}{105}$
81. $\frac{2}{3}(\ln x)^{3/2} + C$
82. $-\frac{1}{8}$
83. $\frac{1}{2}x^2 - x + 2\ln|x+1| + C$
84. $\frac{2}{3}\sqrt{x^3+3x} + C$
85. $\frac{1}{3}x^3 + \frac{1}{2}x^2 + x + C$
86. $\frac{2}{3}x^{3/2} \ln x - \frac{4}{9}x^{3/2} + C$
87. $-\frac{1}{3}\cot 3x + C$
88. $\tan e^x + C$
89. $\ln(\ln(\sin x)) + C$
90. $\sin x [\ln(\sin x) - 1] + C$
91. $-e^{1/x} + C$
92. $\ln|\sec(e^x) + \tan(e^x)| + C$
93. $x \sin x + \cos x + C$
94. 0
95. $\ln(\ln x) + C$
96. $-\frac{x e^x}{x+1} + e^x + C$
97. $-\cos x + C$
98. $-\frac{11}{9}(x+1)^9 + C$
99. $-x + C$
100. 10